Claims

1.   A method of estimating the position of a brain landmark which includes:

(i) defining at least one initial threshold value;

(ii) determining whether a region of a midsagittal radiological image including a brain structure includes a group of pixels having intensity values in a range defined by the initial threshold value and which obey one or more predefined geometrical criteria describing the structure;

(iii) if not, then at least once modifying the threshold value and performing step (ii) again;

(iv) if so, identifying the group of identified pixels as the structure; and

(v) generating a first estimate of the position of the landmark as a point on the identified structure.

2.   A method according to claim 1 in which the structure is the fornix, and the landmark is the anterior commissure (AC).

3.   A method according to claim 2 further including a step of determining whether within the MRI image the fornix is distinguishable from the corpus callosum (CC), and if so excluding the CC from the image.

4.   A method according to claim 1 in which the structure is the brainstem, and the landmark is the posterior commissure (PC).

5.   A method according to any of claims1 to 4, further including a step of generating a sub-image within the midsagittal radiological image including the first estimated position of the landmark, and identifying an improved estimate of the position of the landmark from the intensity values in the sub-image.

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6.   A method of estimating the position of the AC and/or PC landmarks which includes:

(a) using a midsagittal radiological image to estimate the position of the AC and/or PC landmarks in the midsagittal plane;

5   (b) using the estimated position of the AC and/or PC landmarks to generate one or more axial and/or coronal radiological images, including at least one image including the estimated position of the AC and/or PC landmark; and

(c) analysing the axial and/or coronal radiological images to improve
10   the estimate of the position of the AC and/or PC landmarks.

7.   A method according to claim 6 in which the images are axial images, and step (c) includes deriving a mean ventricular line (MVL), and determining the position of the AC and/or PC landmarks by scanning intensity values along the MVL.

15   8.   A method according to claim 7 in which there are a plurality of images relating to different axial slices including a first axial image of an axial slice containing estimates of the position of the AC and/or PC landmarks, and second images of neighbouring axial slices, the method further including the steps of determining dimensions of the AC and/or PC landmarks using the
20   second images.

9.   A method according to claim 6 in which the images are coronal images, and step (c) includes deriving a symmetry line within a first coronal image including estimates of the position of the AC and/or PC landmarks, and determining the position of the landmark by scanning intensity values along
25   the symmetry line.

10.   A method according to claim 9 in which in which there are a plurality of images relating to different coronal slices including second images of coronal slices neighbouring the first coronal slice, the method further including the step of determining dimensions of the AC and/or PC landmarks using the second images.

11.   A method according to any of claims 6 to 10 in which the landmark is the AC.

12.   A method according to any of claims 6 to 10 in which the landmark is the PC.

13.   A method according to any of claims 6 to 12 in which step (a) is performed by a method according to any of claims 1 to 5.

14.   A computing apparatus including a processor arranged to perform a method according to any preceding claim.

15.   A computer program product including program instructions which are readable by a computer and cause the computer to perform a method as defined by any of claims 1 to 14.